Serial Number: 10/608,519

Filing Date: June 24, 2003
Title: THERMAL INTERFACE APPARATUS, SYSTEMS, AND FABRICATION METHODS

Assignee: Intel Corporation

## **IN THE CLAIMS**

Please amend the claims as follows:

- (Original) An apparatus, comprising:

   a unitary, substantially uniformly distributed transfer material forming a mesh; and
   a carrier material coupled to the unitary, substantially uniformly distributed transfer material.
- 2. (Original) The apparatus of claim 1, wherein the unitary, substantially uniformly distributed transfer material further comprises at least one of a component transfer material including bismuth, copper, gold, indium, zinc, antimony, magnesium, lead, silver, tin, and alloys thereof.
- 3. (Original) The apparatus of claim 1, wherein the carrier material further comprises at least one of a component carrier material including a polymer, an elastomer, a hardener, a catalyst, a reactive diluent, an adhesion promoter, a surfactant, a deforming agent, a fluxing agent, a toughening agent, a coupling agent, an epoxy, an ester, a siloxane, a polyamide, a silicone, a rubber, and a wetting agent.
- 4. (Original) The apparatus of claim 1, wherein a plurality of elements included in the unitary, substantially uniformly distributed transfer material are distributed on a grid pattern.
- 5. (Original) The apparatus of claim 1, wherein the unitary, substantially uniformly distributed transfer material further comprises: a plurality of substantially similar geometric objects.
- 6. (Original) The apparatus of claim 5, wherein the plurality of substantially similar geometric objects are arranged in a substantially repeating pattern.

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7. (Original) The apparatus of claim 5, wherein the plurality of substantially similar

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geometric objects includes a plurality of regular geometric objects.

8. (Original) The apparatus of claim 5, wherein the plurality of substantially similar

geometric objects includes a plurality of irregular geometric objects.

9. (Original) The apparatus of claim 5, wherein at least one of a height, a shape, and a

spacing of the plurality of substantially similar geometric objects is selected based on a desired

volume of the unitary, substantially uniformly distributed transfer material.

10. (Original) The apparatus of claim 5, wherein the unitary, substantially uniformly

distributed transfer material comprises a plurality of connecting elements to couple the plurality

of substantially similar geometric objects to each other.

11. (Original) The apparatus of claim 10, wherein the plurality of connecting elements are

arranged in a substantially repeating pattern.

12. – 16. (Canceled)

17. (Original) A system, comprising:

a wireless transceiver;

a die including a circuit coupled to the wireless transceiver; and

a unitary, substantially uniformly distributed transfer material forming a mesh and adjacent the

die and coupled to a carrier material.

18. (Original) The system of claim 17, wherein a plurality of elements included in the unitary,

substantially uniformly distributed transfer material are distributed in a substantially repeating

pattern.

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19. (Original) The system of claim 18, further comprising:

a plurality of connecting elements to couple the plurality of elements included in the unitary,

substantially uniformly distributed transfer material to each other.

20. (Original) The system of claim 18, wherein the substantially repeating pattern comprises a

parallel pattern.

21. (Original) The system of claim 18, wherein the substantially repeating pattern comprises a

grid pattern.

22. (Original) The system of claim 17, wherein the unitary, substantially uniformly

distributed transfer material further comprises:

a plurality of substantially similar geometric objects distributed in a grid pattern.

23. (Original) The system of claim 22, wherein at least one of a height, a shape, and a spacing

of a plurality of substantially similar geometric objects is selected based on a package stress

associated with the die.

24. (Original) The system of claim 17, further comprising:

a heat dissipating element coupled to the unitary, substantially uniformly distributed

transfer material.

25. – 35. (Canceled)

36. (New) The apparatus of claim 1, further comprising:

a heat dissipating element coupled to the unitary, substantially uniformly distributed

transfer material.

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37. (New) The apparatus of claim 1, wherein the unitary, substantially uniformly distributed transfer material includes:

an array of solderable elements coupled to each other by a plurality of solderable connecting elements.

- 38. (New) The apparatus of claim 37, wherein the array of solderable elements is at least partially embedded in the carrier material.
- 39. (New) The apparatus of claim 37, wherein an average volume of each one of the plurality of solderable connecting elements is less than about one-half of a volume of an average size of each one of the array of solderable elements.
- 40. (New) The apparatus of claim 6, wherein the substantially repeating pattern comprises a parallel pattern.